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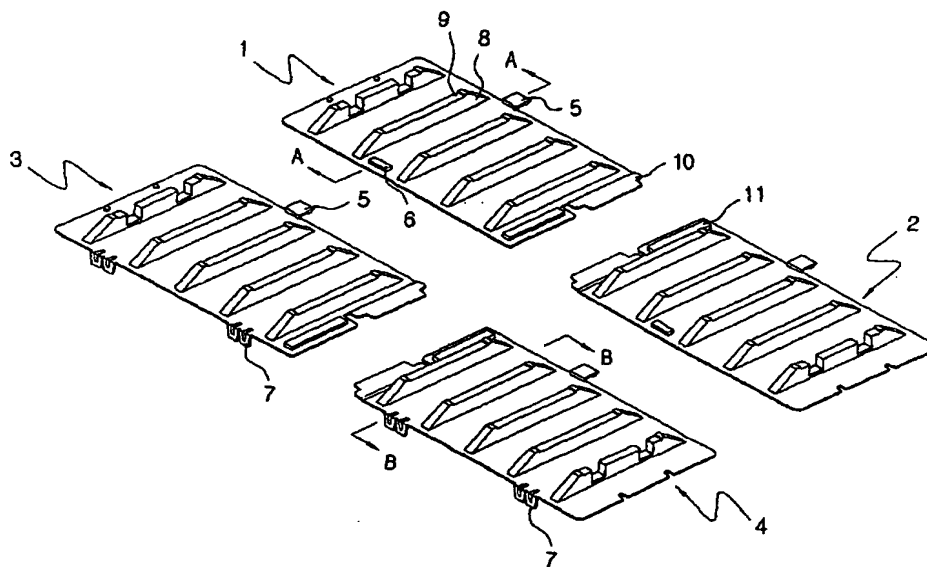
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: COUPLING SET FOR CONNECTING GROUND PLATE FOR ARREST OF LIGHTNING



(57) Abstract: A coupling set for connecting a ground plate for arrest of lightning is provided, in which the ground plate is embedded underground below an electric pole in order to effectively arrest lightning. Accordingly, lightning can be effectively grounded. The connection members are connected with each other top and bottom and left and right. The lowest connection member is supported below an electric pole. Thus, when the electric pole is buried, a coupling set having connection members for connecting a ground plate is not be pushed up. Also, it is very easy to connect a lightning arrest copper wire with a ground terminal.

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**COUPLING SET FOR CONNECTING GROUND PLATE FOR ARREST OF  
LIGHTNING**

**Technical Field**

5           The present invention relates to a coupling set for connection of a lightning arrest ground plate, and more particularly, to a coupling set for connecting a ground plate for arrest of lightning, in which the ground plate is embedded underground below an electric pole in order to effectively  
10       arrest lightning.

**Background Art**

          The Inventor has improved his previous registered Korean Utility Model entitled "a coupling set for connection of a  
15       lightning arrest ground plate" disclosed in Korean Utility Model Publication No. 20-2002-282258 on 19 July 2002. In the Korean Utility Model Publication No. 20-2002-282258, a coupling set for connection of a lightning arrest ground plate is embedded and buried below a burial place of an electric  
20       pole. Here, the coupling set for connection of the ground plate is not fixed at a fixed position but pushed and raised along the electric pole. Also, separate clips are needed to combine lightning arrest copper wires with ground terminals.

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**Disclosure of the Invention**

To solve the above problems, it is an object of the present invention to provide a coupling set for connecting a ground plate for arrest of lightning in which when the electric pole is buried, a coupling set having connection members for connecting a ground plate is not be pushed up, and it is also very easy to connect a lightning arrest copper wire with a ground terminal.

To accomplish the above object of the present invention, there is provided a coupling set for connecting a ground plate for arrest of lightning in which a stopper is needed in order that the connection coupling set of the ground plate may not secede from the bottom surface of an electric pole.

Also, when the connection coupling sets of the ground plate are connected with one another in the lengthy direction, and the lowest ground plate connection coupling set is fixed, the other ground plate connection coupling sets are fixed in series. Further, since ground terminals are also configured into a clip or tightener shape of a simple shape, ground copper wires can be easily combined with the ground terminals without having a fixing clip on a working site.

#### **Brief Description of the Drawings**

The above and other objects and advantages of the present invention will become more apparent by describing the

preferred embodiment thereof in more detail with reference to the accompanying drawings in which:

FIG. 1 is a perspective view of each connection member according to the present invention;

5           FIG. 2 is a perspective view for explaining a relationship of connection between connection embers and a ground copper plate according to the present invention;

FIG. 3A is a cross-sectional view cut along a line A-A of FIG. 1;

10           FIG. 3B is a cross-sectional view cut along a line B-B of FIG. 1; and

FIG. 4 shows a state where a ground plate has been installed below an electric pole according to the present invention.

#### Best Mode for Carrying out the Invention

15           A coupling set for coupling a ground plate for arrest of lightning according to a preferred embodiment of the present invention will be described with reference to the accompanying drawings.

20           Referring to FIGs. 1 and 4, a coupling set for connecting a ground plate for arrest of lightning according to the present invention has a structure where a first  
25           connection member 1 and a second connection member 2 which

are connected horizontally with each other are positioned at the upper portion of the whole coupling set, and a third connection member 3 and a fourth connection member 4 which are connected horizontally with each other are positioned at the lower portion thereof. Then, the first connection member 1 and the second connection member 2 are connected vertically with the third connection member 3 and the fourth connection member 4, respectively. As shown in FIG. 4, the first connection member 1 and the second connection member 2 are connected with each other by means of tightening belts 12 in a burial portion of an electric pole 18, and likewise the third connection member 3 and the fourth connection member 4 are connected with each other by means of tightening belts 12 in the burial portion of the electric pole 18. A ground copper plate 13 of FIG. 2 is mounted on mount seats 9 of spacers 8 formed on the respective connection members 1 to 4, so that the ground copper plate 13 is connected on the connection members by left-hand and right-hand coupling portions 19 and 19'.

Referring to FIGs. 3A and 3B in the present invention, an upper connection piece 5 having a key protrusion 5-1 is formed on the upper portion of first and second connection members 1 and 2, respectively, and an upper connection groove 6 having a key groove 6-1 is formed on the respective lower portions thereof. An upper connection piece 5 having a key

protrusion 5-1 is formed on the upper portion of third and fourth connection members 3 and 4, respectively, and at least one lower supporter 7 is formed in the respective lower portions thereof. A ground copper plate 13 combined with a ground terminal 14 is mounted on mount seats 9 of the connection members 1 to 4, so that the ground copper plate 13 is horizontally mounted.

The ground terminal 14 includes a lower fixing portion 15, a middle bent portion 16, and an upper combiner 17 whose ends are open. In the present invention, the connection members 1 and 2 are horizontally connected with each other, and the connection members 3 and 4 are horizontally connected with each other, and then the connection member 1 and the connection member 2 are connected vertically with the connection member 3 and the connection member 4, respectively, in which the upper connection piece 5 is combined with the upper connection groove 6. Then, the connection members 1 to 4 which have been connected to each other are combined with the lower portion of an electric pole 18 by means of tightening belts 12, and then the ground copper plate 13 is horizontally wound around and combined with the connection members. Thereafter, lightening arrest copper wires are connected with the ground terminal 14, to thereby complete preparation of burial of the coupling device for connection of a ground plate to arrest lightening, together with the

electric pole 18. Here, lower supporters 7 formed in the lower portions of the respective third and fourth connection members 3 and 4 and bent inwards therefrom are supported on the bottom surface of the electric pole 18 and thus prevent the connection members from being pushed up and raised. The first and second connection members 1 and 2 can be combined in a multiple layer as many as the number desired by a designer. Here, couplers for connecting the first and second connection members 1 and 2 are upper connection pieces 5 and upper connection grooves 6. The upper connection pieces 5 and upper connection grooves 6 are connected in a female-to-male fashion, and vertically. Meanwhile, the ground terminal 14 is a simple linear-shaped terminal, but has an upper combiner 17 whose ends are open such as a clip or joint terminal. Accordingly, lightening arrest copper wires 19 are fitted into the combiner 17 and then the combiner 17 is tightened by a tightening tool to thereby easily connect the lightening arrest copper wires with the ground plate.

#### Industrial Applicability

As described above, the present invention provides a coupling set for connecting a ground plate for arrest of lightning in which respective connection members are connected with one another, in all directions such as left, right, up and down. Thus, when the electric pole is buried, a

coupling set having connection members for connecting a ground plate is not be pushed up, and it is also very easy to connect a lightning arrest copper wire with a ground terminal.

As described above, the present invention has been  
5 described with respect to a particularly preferred embodiment.  
However, the present invention is not limited to the above  
embodiment, and it is possible for one who has an ordinary  
skill in the art to make various modifications and variations,  
without departing off the spirit of the present invention.

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**What is claimed is:**

1. A coupling set for connecting a ground plate for arrest of lightning, the coupling set comprising:

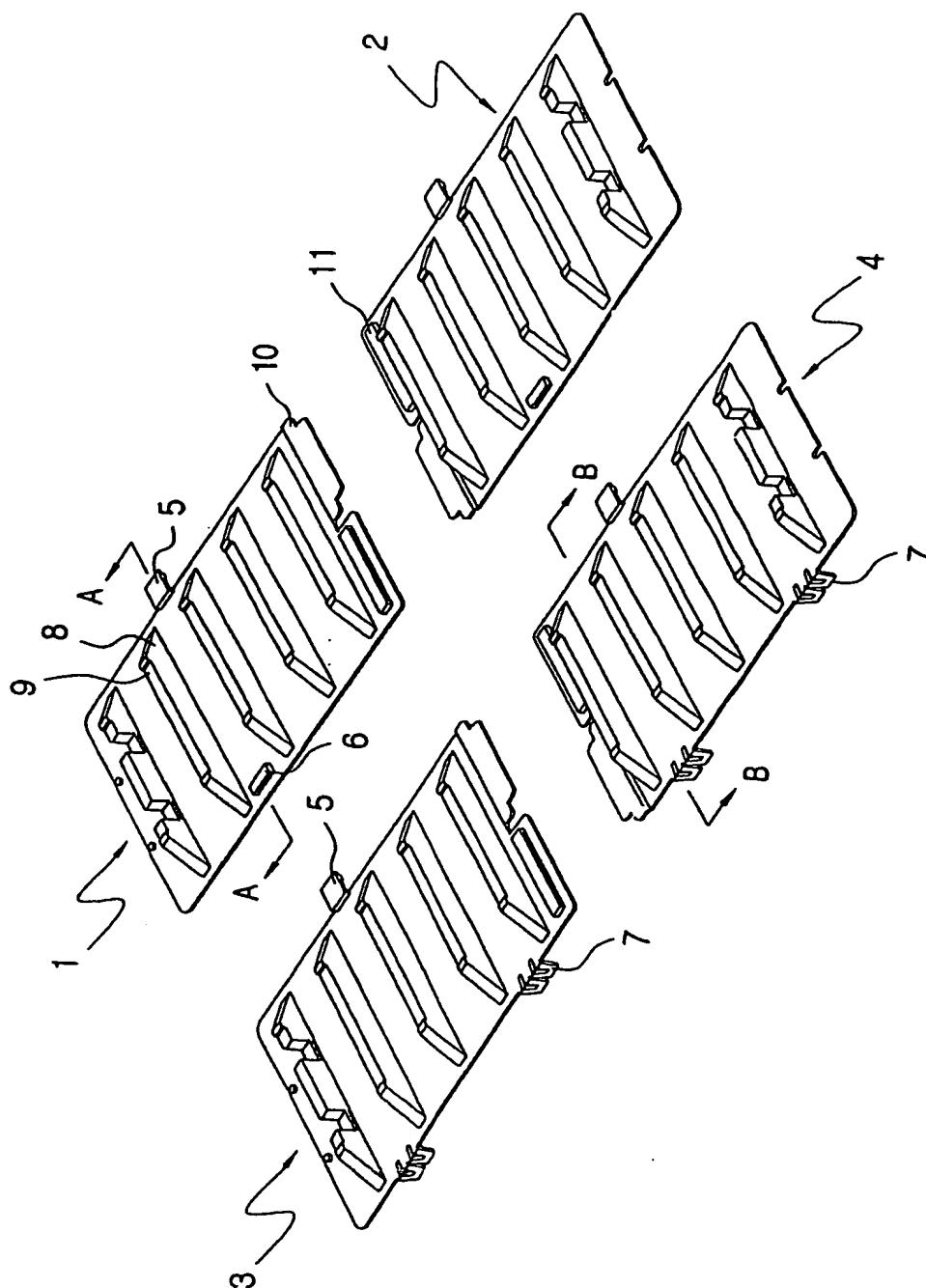
5 a first group of connection members (1 and 2) having an upper connection piece (5) having a key protrusion (5-1) formed on the upper portion thereof, respectively, and an upper connection groove (6) having a key groove (6-1) formed on the respective lower portions thereof; and

10 a second group of connection members (3 and 4) having an upper connection piece (5) having a key protrusion (5-1) formed on the upper portion thereof, respectively, and at least one lower supporter (7) formed in the respective lower portions thereof,

15 wherein the ground copper plate (13) combined with a ground terminal (14) is mounted on mount seats (9) of the connection members (1-4), so that the ground copper plate (13) is horizontally mounted.

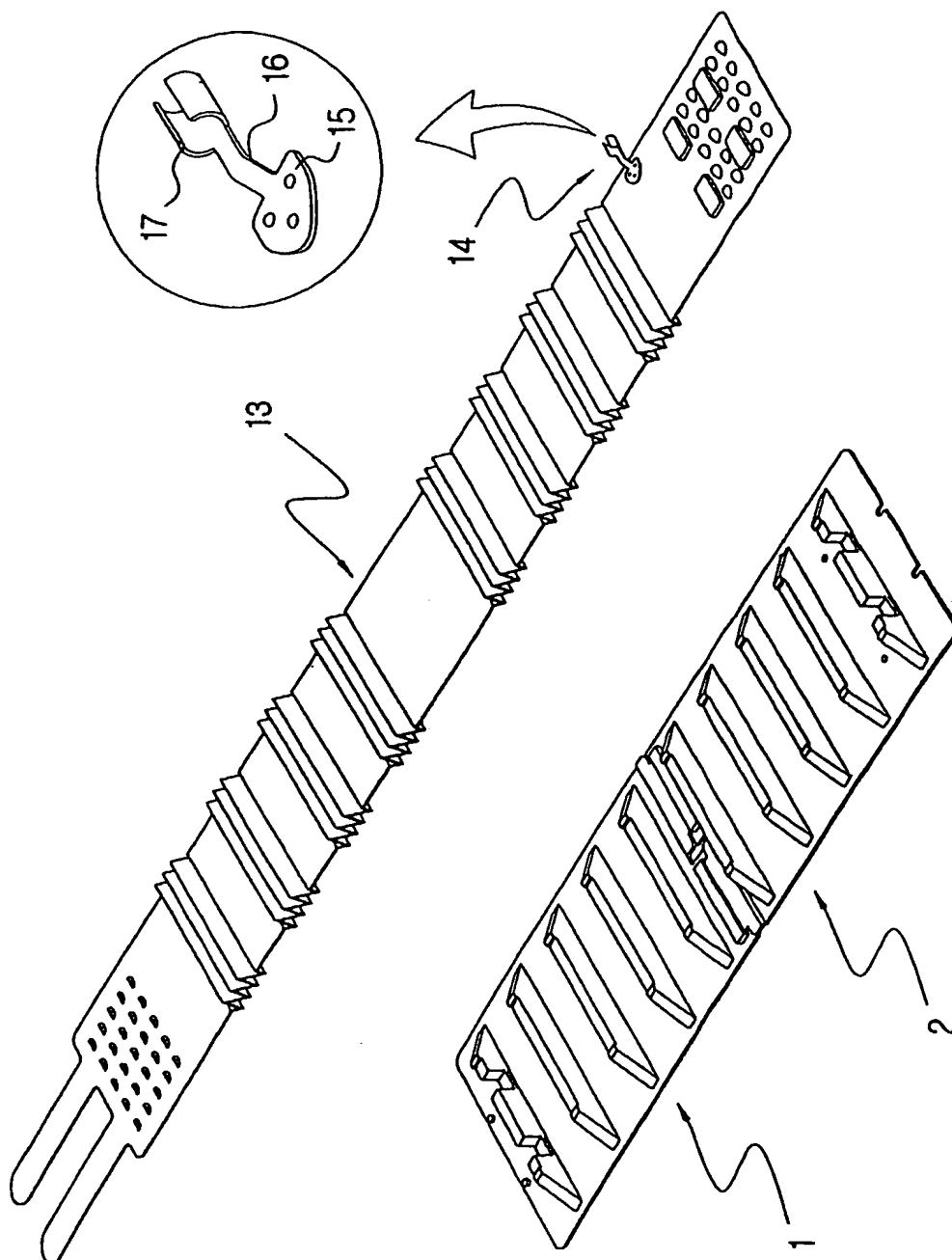
20 2. The coupling set for connecting a ground plate for arrest of lightning of claim 1, wherein the ground terminal (14) comprises a lower fixing plate (15), a middle bent portion (16), and an upper connector (17) whose terminating portions are open.

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FIG. 1

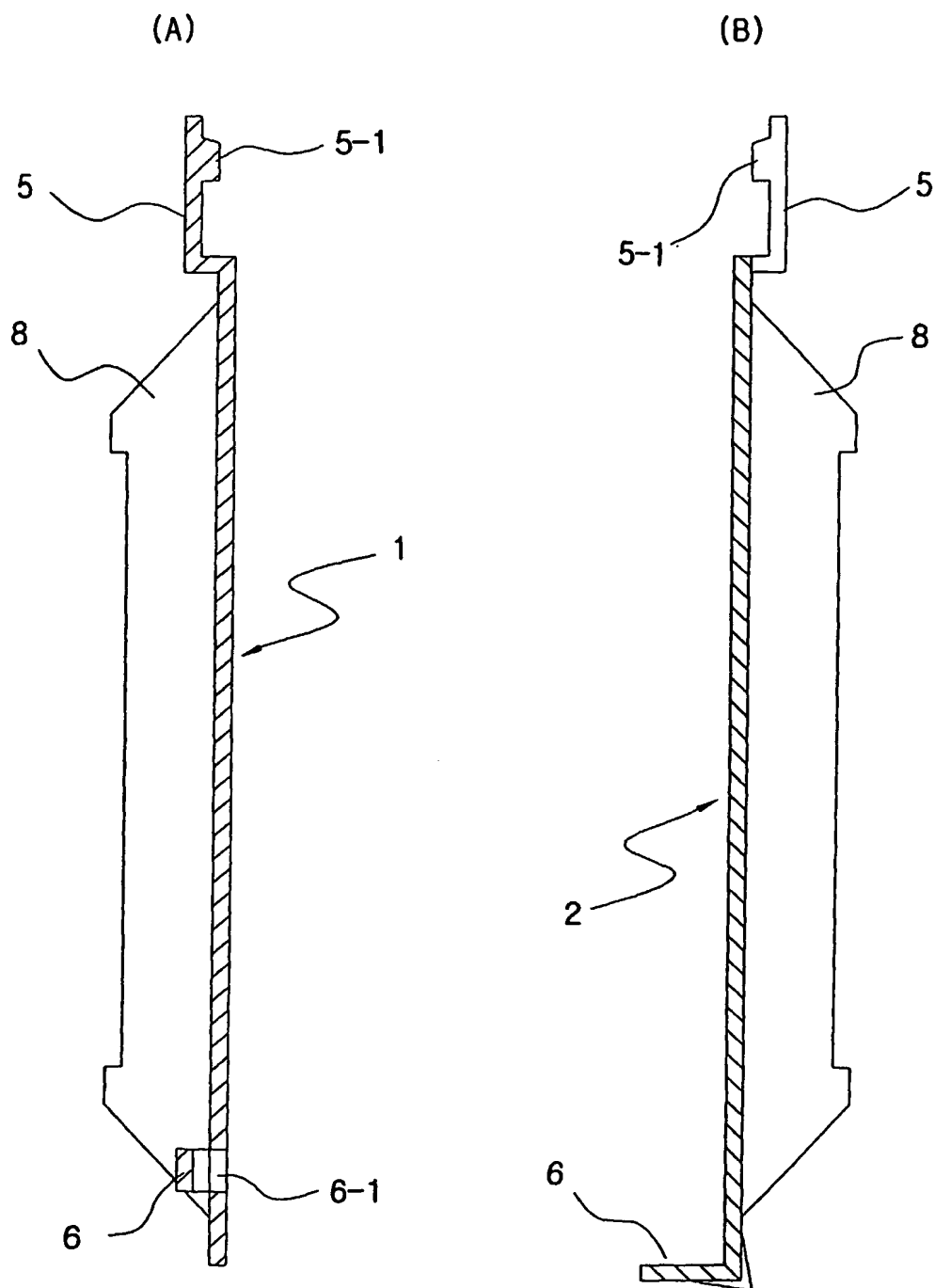


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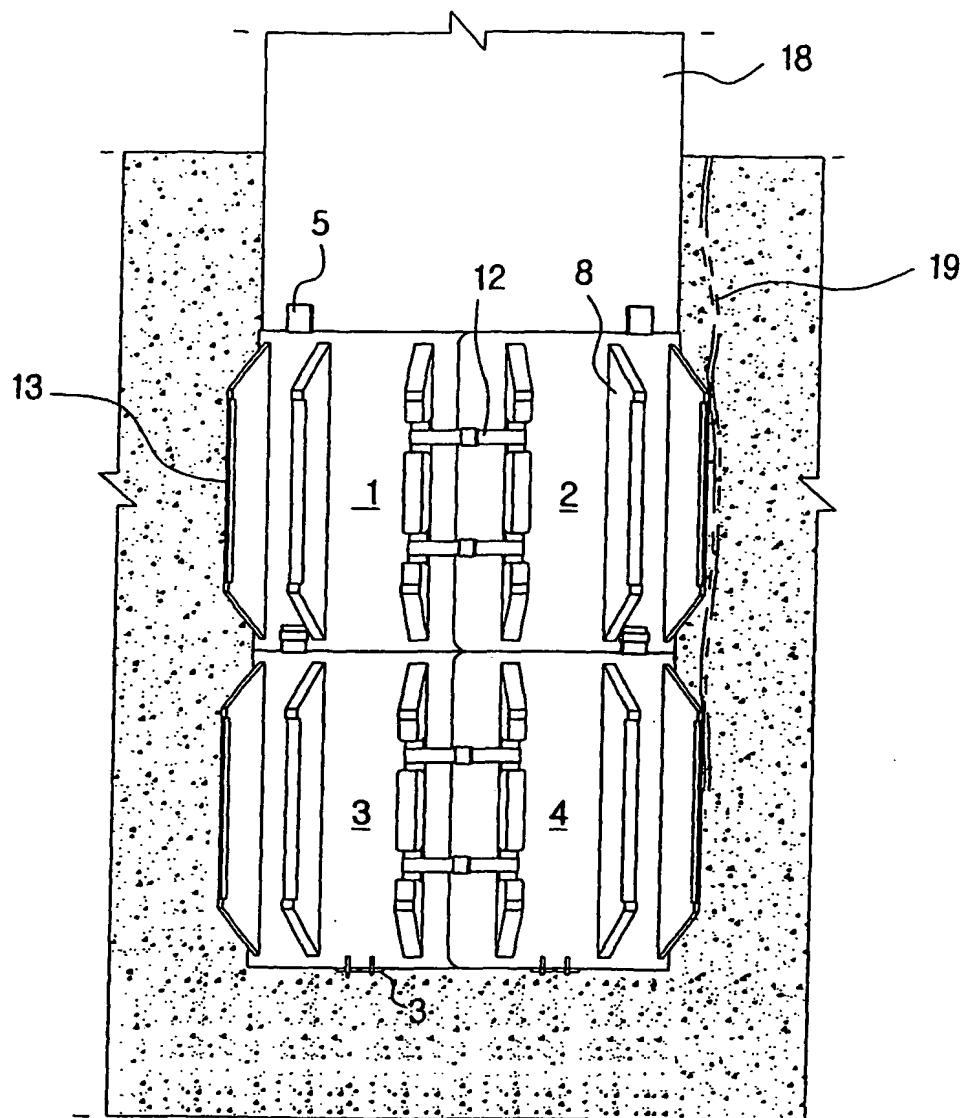
FIG. 2



3/4  
FIG. 3



4/4  
FIG. 4



## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR2003/002376**A. CLASSIFICATION OF SUBJECT MATTER****IPC7 H01R 4/66**

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC7 H01R 13/655

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Patents and applications for inventions since 1975

Korean Utility models and applications for Utility models since 1975

Japanese Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

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**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 20-0265496 Y1 (PARK, JOON-YOUNG) 21 February 2002 See the whole document	1-2
A	KR 20-0185354 Y1 (YOU, JAE-HYUN) 15 June 2000 See the whole document	1-2
A	KR 20-0267212 Y1 (CHANG MYUNG HEAVY ELECTRONIC CO. LTD) 09 March 2002 See the whole document	1-2
A	KR 20-0272239 Y1 (AN, CHI-JEONG) 13 April 2002 See the whole document	1-2

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

\* Special categories of cited documents:

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family


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